

CLAIMS

1. A nonaqueous electrolyte secondary battery which comprises a negative electrode including silicon-containing material, wherein:

said battery comprises a nonaqueous electrolyte solution, and

said nonaqueous electrolyte solution includes a phosphazene derivative.
2. The nonaqueous electrolyte secondary battery according to claim 1, wherein said silicon-containing material is coated with carbon.
3. The nonaqueous electrolyte secondary battery according to claim 1, wherein a concentration of said phosphazene derivative is 0.1 to 30 mass% relative to said nonaqueous electrolyte solution.
4. The nonaqueous electrolyte secondary battery according to claim 1, wherein said silicon-containing material is either one of silicon and a silicon oxide.
5. The nonaqueous electrolyte secondary battery according to claim 2, wherein said silicon-containing material is coated with carbon by at least one of following methods:

a method of CVD;

a method using mechanochemical reaction; and

a method in which a mixture of thermoplastic resin and silicon-containing material is calcinated.
6. The nonaqueous electrolyte secondary battery according to claim 2, wherein a mixed proportion of said silicon-containing material relative to a negative active material which said negative electrode has is 5 to 15 mass%.

7. The nonaqueous electrolyte secondary battery according to claim 2, wherein said silicon-containing material coated with carbon and said silicon-containing material mixed with carbon material are included in the negative electrode.

8. The nonaqueous electrolyte secondary battery according to claim 2, wherein a concentration of said phosphazene derivative is 0.1 to 30 mass% relative to said nonaqueous electrolyte solution.

9. The nonaqueous electrolyte secondary battery according to claim 2, wherein said silicon-containing material is either one of silicon and a silicon oxide.

10. The nonaqueous electrolyte secondary battery according to claim 1, wherein said nonaqueous electrolyte solution includes a compound including fluorine.

11. The nonaqueous electrolyte secondary battery according to claim 2, wherein said nonaqueous electrolyte solution includes a compound including fluorine.

12. The nonaqueous electrolyte secondary battery according to claim 10, wherein said compound is LiPF_6 .

13. The nonaqueous electrolyte secondary battery according to claim 11, wherein said compound is LiPF_6 .